IN THE SPECIFICATION

Please amend the paragraph at page 6, lines 14-28 as follows:

Guidance system 22 includes a beam splitter 40, a first, or measuring, optic fiber 42, and a second, or reference, optic fiber 44, an illumination source 46, two piezo electric transducers (PZT's) 48 and 50, a detecting element 52, and a computer 54. Beam splitter 40 includes an illumination source input 56, a first beam output 58, a second beam output 60, and a combined beam output 62. First optic fiber 42 includes a first end 64 and a second end 66, and is coupled to guide wire 28 so that second end 66 is adjacent guide wire head 32 and is positioned in blood vessel interior 36. First optic fiber ~~first end 64~~ second end 66 is glued to guide wire head 32, for example with epoxy and a portion of second end 66 extends beyond guide wire head 32 as shown. Second optic fiber 44 also includes a first end 68 and a second end 70. Second optic fiber second end 70 includes a fixed reflector 72. First optic fiber first end 64 is coupled to first beam output 58, and second optic fiber first end 68 is coupled to second beam output 60. First optic fiber 42 is configured to emit energy waves substantially coaxially with respect to guide wire head 32. In one embodiment, illumination source 46 is a low coherent illumination source, for example, a laser, edge-emitting light emitting diode (ELED) or superluminescent emitting diode (SLD).

Please amend the paragraph at page 7, lines 11-21 as follows:

As shown in Figure 7, interference data, plotted as intensity of reflected light versus distance, is determined by the guide wire guiding ~~apparatus. and Computer~~ apparatus, and computer 54 utilizes the interference data to determine the safety of advancing guide wire 28. For example, computer 54 is programmed with a simple algorithm, using a sliding average of multiple points along the function shown in Figure 7, to identify true inflection points in the plot of intensity of reflected light versus distance. True inflection points are associated with changes in tissue type, as previously described. In one alternative, if detecting element 52 generates

interference data representative of a loss of signal through first optic fiber 42, the optical path lengths along first and second optic fibers 42 and 44 may be varied by expanding PZTs 48 and 50 to reestablish a signal at a new distance from first optic fiber second end 66.

Please amend the paragraphs at page 11, line 33, to page 12, line 31 as follows:

More specifically, a method [[100]] for determining neovascular flow in a vessel includes generally the step of performing [[102]] a Doppler shift analysis on the frequencies of interference fringes generated by an interferometric system examining the vessel. Performing [[102]] the Doppler shift analysis includes the step of applying [[104]] a known amplitude-modulated voltage signal to PZT's 48 and 50. The vessel tissue is, for example, continually scanned with the frequency modulated signal. Applying [[104]] the known amplitude-modulated voltage signal to the PZT's results in changing in a known way the optical path-lengths of the light beams as they travel along first optic fiber 42 and second optic fiber 44, resulting in a Doppler shift of the light. ~~Method 100~~ The method thus includes the step of calculating or determining [[106]] an expected Doppler frequency shift due to the known change in optical path-lengths. To obtain the actual Doppler shift, the method [[100]] includes the step of measuring [[108]] the actual resulting frequencies of the interference peaks, with circuit 80.

The frequency measurements reveal the actual Doppler shift that consists of two components. A first, known component results from the known change in the optical path-lengths of the light beams with the known amplitude-modulated voltage signal to the PZT's. A second, variable component results from velocity changes of the reflecting target (i.e., red blood cells). The second component of the Doppler shift reveals the presence of neovascular channels. More specifically, the presence of neovascular channels is revealed when the second component of the Doppler shift increases in magnitude , because the velocity of red blood cells is greater than the surrounding tissue of the obstruction or occlusion. To detect the presence of neovascular flow, ~~method 100~~ the method includes the step of subtracting [[110]] the first, known component of the actual Doppler shift from the actual Doppler shift as measured above.

The remainder is due to the second shift component which indicates the presence of neovascular channels. When the presence of neovascular channels through an obstruction is thus established, the operator of the guide wire guiding apparatus uses that information to choose a path of least or reduced resistance for advancement of the guide wire. Thus the Doppler shift information is used to guide the guide wire through an obstruction or occlusion within a vessel being examined. In one embodiment, enunciators such as audible tones or visual graphical displays on visual monitors alert the operator, or indicate for the operator, areas of blood flow revealing the presence of neovascular channels.